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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/929,716	08/13/2001	Antoine J. Rouphael	2001P14759US	8933

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Siemens Corporation
Attn: Elsa Keller, Legal Administrator
Intellectual Property Department
186 Wood Avenue South
Iselin, NJ 08830

EXAMINER

AGHDAM, FRESHTEH N

ART UNIT	PAPER NUMBER
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2631

DATE MAILED: 07/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/929,716

Applicant(s)

ROUPHAEL, ANTOINE J.

Examiner

Freshteh N. Aghdam

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments, see page 7, filed 04/29/2005, with respect to the rejection(s) of claim(s) 1-11 under de Lantremange, Kuenast, Segal, Marchok, and Sehier have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Vaananen (US 2003/0091111), de Lantremange (US 5,970,093), Segal (US 6,647,069), and Sehier (US 5,933,467).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vaananen (2003/0091111), and further in view of de Lantremange (US 5,970,093).

As to claims 1 and 2, Vaananen teaches a method for reducing intersymbol interference in a communications system, comprising specifying an initial shaping filter; determining a level of intersymbol interference for a final shaping filter, wherein the final shaping filter is obtained by further processing the initial shaping filter including generating a data sequence (i.e. bit stream) for modeling channel noise; and updating

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final shaping filter coefficients iteratively until the intersymbol interference is at or below a desired level (Fig. 2, means 2 and 3; Par. 19 and 52). Vaananen is silent about updating final shaping filter coefficients at optimal sampling points. de Lantremange teaches a method to reduce intersymbol interference wherein the coefficients are updated at optimal timing (i.e. symbol rate) until ISI reaches a steady state minimum level (Col. 3, Lines 4-15). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of de Lantremange with Vaananen in order to reject noise outside of the signal bandwidth including adjacent channel interferences (Col. 3, Lines 11 and 12).

Claims 3 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vaananen and de Lantremange, further in view of Segal (US 6,647,069).

As to claims 3 and 7, Vaananen and de Lantremange teach all the subject matters claimed above, except for the initial shaping filter to be convolved with its complex matched filter counter part. Segal, in the same field of endeavor, teaches convolving the spectral shaping filter (Fig. 4, means 407; Col. 5, Lines 19-25) with its matched filter that could be complex (Fig. 4, means 408). Therefore it would have been obvious to one of ordinary skill in the art to combine the teaching of Segal with Vaananen and de Lantremange in order to improve speed of data transmission (Abstract).

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Segal, further in view of Vaananen and de Lantremange.

As to claims 4 and 5, Segal teaches a spectral filter (407) with certain time domain and spectral characteristics being convolved with a matched filter (408). Segal is silent about generating a data sequence comprising a channel noise model; convolving the data sequence with the given filter; and deriving an optimized shaping filter responsive to the convolving by adaptively minimizing an error metric at points on the initial shaping filter corresponding to optimal sampling points thus producing a signal with minimal ISI period. Vaananen, in the same field of endeavor, teaches generating a data sequence comprising a channel noise model (Fig. 2, means 2); convolving the data sequence with the given filter (Fig. 2, Par. 19). One of ordinary skill in the art would clearly recognize that the relationship between the input and output of any filter in the time domain is the convolution of the input with the transfer function of the filter equals the output signal of the filter. Deriving an optimized shaping filter responsive to the convolving by adaptively minimizing an error metric using a LMS algorithm (Par. 19) to produce a signal with a minimal ISI period (Par. 19 and 52). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Vaananen with Segal in order to reduce the effect of ISI more accurately. de Lantremange, in the same field of endeavor, teaches updating the filter coefficients at optimal sampling points (Col. 3, Lines 4-15). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of de Lantremange with Segal and Vaananen in order to improve speed of data transmission (Abstract).

As to claim 6, Vaanaen teaches a communications device comprising a coder (Fig. 2, means 1) for encoding data; an RF modulator (Fig. 2, means 1; Par. 14); a

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shaping filter for shaping the coded data, wherein the shaping filter is generated by constraining the filter coefficients in their adaptation and the initial shaping filter includes a channel noise model (Fig. 2, means 2) for minimizing the ISI effect (Par. 19 and 52). de Lantremange teaches a method to reduce intersymbol interference wherein the coefficients are updated at optimal timing (i.e. symbol rate) until ISI reaches a steady state minimum level (Col. 3, Lines 4-15). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of de Lantremange with Vaananen in order to reject noise outside of the signal bandwidth including adjacent channel interferences (Col. 3, Lines 11 and 12).

As to claims 8 and 9, Vaananen teaches updating the filter coefficients until reaching a steady state (Par. 52).

Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Segal, further in view of Vaananen, de Lantremange, and Sehier (US 5,933,467).

As to claims 10 and 11, Segal teaches a spectral filter (407) with certain time domain and spectral characteristics being convolved with a matched filter (408). Segal is silent about the matched filter being the complex conjugate of the shaping filter; generating a data sequence comprising a channel noise model; convolving the data sequence with the given filter; and deriving an optimized shaping filter responsive to the convolving by adaptively minimizing an error metric at points on the initial shaping filter corresponding to optimal sampling points thus producing a signal with minimal ISI period. Vaananen, in the same field of endeavor, teaches generating a data sequence comprising a channel noise model (Fig. 2, means 2); convolving the data sequence with

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the given filter (Fig. 2, Par. 19). One of ordinary skill in the art would clearly recognize that the relationship between the input and output of any filter in the time domain is the convolution of the input with the transfer function of the filter equals the output signal of the filter. Deriving an optimized shaping filter responsive to the convolving by adaptively minimizing an error metric using a LMS algorithm (Par. 19) to produce a signal with a minimal ISI period (Par. 19 and 52). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Vaananen with Segal in order to reduce the effect of ISI more accurately. de Lantremange, in the same field of endeavor, teaches updating the filter coefficients at optimal sampling points (Col. 3, Lines 4-15). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of de Lantremange with Segal and Vaananen in order to improve speed of data transmission (Abstract). Sehier, in the same field of endeavor, teaches convolving the impulse response of a Nyquist filter with its complex conjugate matched filter. Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Sehier with Segal, Vaananen, and de Lantremange in order to optimize the system performance (Col. 9, Lines 65 and 66).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

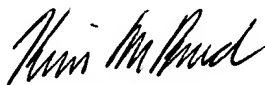
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Freshteh N. Aghdam whose telephone number is (571) 272-6037. The examiner can normally be reached on Monday through Friday 9:00-5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Freshteh Aghdam
July 21, 2005


KEVIN BURD
PRIMARY EXAMINER